

MEMORANDUM (LABORATORY DATA REPORT)

Shaw Environmental & Infrastructure Inc.

Contract No. EP-C-08-034

In reply refer to: 11-JK-8

To: C. Paul
D. Miller

From: J. Karikari

Thru: S. Kumar
J. Cox

Lab: HPLC

Date: 12-May-2011

Technical Directive No.: 7OA724LT
Task No.: 23993

Originator: R.Wilkin
Copies: J.Karikari
J.Cox
S. Vandegrift

Sample Site/Project: Pavillion Groundwater

Date Collected: 4/20&21/2011

Date Received: 22-Apr-2011

Date Analyzed: 3-May-2011

No. Samples Analyzed: 5

Shaw Sample Set No.: 6032

Sample Matrix: Water

Analysis Type: HPLC

Sample Preparation: N/A

Method(s) Used :

RSKSOP-112/6 . "Standard Operating Procedure for Quantitative Analysis of Low Molecular Weight Acids in Aqueous Samples by HPLC."

Comments:

Comments: All QC results with the exception the matrix spike met criteria established in RSKSOP 112 Revision 6 . Isobutyrate in the matrix spike coeluted with a large unknown peak possibly from the trisodium phosphate used to preserve the samples. A laboratory control Spike was run and it met the criteria established in RSKSOP-112/6.

Shaw Environmental & Infrastructure Inc.
Analytical Service Results Report

Laboratory: **HPLC** Report Date: **12-May-2011**

Technical Directive: **70A724LT**

Analyst: **J. Karikari**

Method: **RSKSOP-112/6**

Sample Results						
Analytes	Lactate	Formate	Acetate	Propionate	Isobutyrate	Butyrate
CAS #	867-56-1	141-53-7	127-09-3	137-40-6	19455-20-0	156-54-7
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDL	0.014	0.009	0.005	0.006	0.007	0.007
QL	0.10	0.10	0.10	0.10	0.10	0.10

Field Sample ID	Lab Sample ID	Date Collected	Date Analyzed	Data	DF	Data	DF	Data	DF	Data	DF	Data	DF	Data	DF
PGDW14-0411	6032-01	20-Apr-2011	3-May-2011	ND	1	BQL(0.073)	1	0.101	1	ND	1	ND	1	ND	1
PGDW14-0411	6032-01LabDup	20-Apr-2011	3-May-2011	ND (RPD=NA)	1	BQL(0.068) (RPD=NA)	1	0.102 (RPD=0.985)	1	ND (RPD=NA)	1	ND (RPD=NA)	1	ND (RPD=NA)	1
PGDW49-0411	6032-02	20-Apr-2011	3-May-2011	BQL(0.046)	1	0.128	1	BQL(0.097)	1	ND	1	ND	1	ND	1
PGDW23-0411	6032-03	21-Apr-2011	3-May-2011	ND	1	ND	1	ND	1	ND	1	ND	1	ND	1
PGDW44-0411	6032-04	21-Apr-2011	3-May-2011	ND	1	ND	1	ND	1	ND	1	ND	1	ND	1
Field Blank	6032-05	21-Apr-2011	3-May-2011	ND	1	BQL(0.075)	1	ND	1	ND	1	ND	1	ND	1

Comments: A large unknown peak possibly from the trisodium phosphate used to preserve the samples prevented quantitation of isobutyrate. All other data quality objectives (DQO) or RSKSOP 112/6 have been met. The MDL was completed June 29, 2010.

Notes:

1. If the parameter was detected above the quantitation limit (QL), the numeric result is reported; BQL denotes that the parameter was not detected at or above the quantitation limit; BQL () denotes that the parameter was detected above the method detection limit (MDL) but below QL and the estimated numeric result is reported in parenthesis; ND denotes that the parameter was not detected at all. All the results are corrected with dilution factors (DF), if applicable.

2. "-" denotes that the information is not available or the analyte is not analyzed.

Shaw Environmental & Infrastructure Inc.
Analytical Service Results Report

Laboratory: **HPLC** Report Date: **12-May-2011**

Technical Directive: **70A724SF**

Analyst: **J. Karikari**

Method: **RSKSOP-112/6**

Quality Control Data Summary						
Analytes	Lactate	Formate	Acetate	Propionate	Isobutyrate	Butyrate
CAS #	867-56-1	141-53-7	127-09-3	137-40-6	19455-20-0	156-54-7
Unit	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
MDL	0.014	0.009	0.005	0.006	0.007	0.007
QL	0.10	0.10	0.10	0.10	0.10	0.10

QC Sample ID	Additional ID	Date Prepared	Date Analyzed	Data	True Value	% REC	Data	True Value	% REC	Data	True Value	% REC	Data	True Value	% REC	Data	True Value	% REC	Data	True Value	% REC
MB	Blank	2-May-2011	3-May-2011	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-
CCC	10.0 mg/L	2-May-2011	3-May-2011	10.2	10.0	102	9.92	10.0	99.2	9.80	10.0	98.0	10.2	10.0	102	10.1	10.0	101	10.2	10.0	102
SS	10.0 mg/L	2-May-2011	3-May-2011	10.4	10.0	104	10.1	10.0	101	9.72	10.0	97.2	10.2	10.0	102	9.86	10.0	98.6	10.1	10.0	101
LCS	10.0 mg/L	2-May-2011	3-May-2011	10.5	10.0	105	10.2	10.0	102	9.97	10.0	99.7	10.4	10.0	104	10.0	10.0	100	10.2	10.0	102
MS	6032-02MS	2-May-2011	3-May-2011	10.90	0.046 (10.0)	109	10.1	0.128 (10.0)	99.7	9.52	0.097 (10.0)	94.2	9.58	ND (10.0)	95.8	ND (10.0)	ND (10.0)	*	10.6	ND (10.0)	106
MB	Blank	2-May-2011	3-May-2011	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-
CCC	10.0 mg/L	2-May-2011	3-May-2011	10.5	10.0	105	10.2	10.0	102	9.97	10.0	99.7	10.4	10.0	104	10.2	10.0	102	10.5	10.0	105
MB	Blank	2-May-2011	3-May-2011	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-	ND	-	-

Comments: The data quality objectives (DQO) of RSKSOP 112/6 with the exception of the matrix spike have been met. The MDL was completed June 29, 2010. *Isobutyrate in the matrix spike coeluted with a large unknown peak possibly from the trisodium phosphate used to preserve the samples. A Laboratory Control Sample was run and it met the criteria established in RSKSOP-112/6.

Notes:

1. **MB** - Method Blank. **CCC** - Continuing Calibration Check. A calibration standard analyzed within the batch of samples. **LCS** - Laboratory Control Spike. A laboratory blank spiked with analytes at known concentrations. **MS** - Matrix Spike. A field sample spiked with known concentrations of analytes. The field sample id is identified. **QC** - Samples obtained from the second sources are identified by their designated names. **DUP** - Field sample duplicate analysis. A sample selected by the lab analyst to analyze as a duplicate. It is reported in the sample result section. **% REC** - Percent Recovery. Calculated as the percentage of the results to the true values. It equals to % accuracy for CCC.

2. "-" denotes that the information is not available or the analyte is not analyzed.